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Now it seems to us that whether the triangles are uniformly distributed on the semi-circumference or not is of no concern in the solution of the problem. The question is (1), how many right triangles are there whose hypotenuses are  $a$ ; and (2), what is the area of each one of these triangles? Having found the numbers answering to these questions, we divide the sum of the areas of the triangles by the number of triangles, according to the principle of *Mean Value*, and get the required result. The *sum* of the areas of the triangles is easily found by the aid of the Calculus and the number of triangles is equal to the semi-circumference of a circle whose diameter is  $a$ . This is, in our opinion, the correct solution and agrees with II. above. All of the above solutions are, doubtless, correct from the stand-points of the authors, but the stand-points of some must be wrong. As it is the object of the MONTHLY to aid in the establishment of sound principles in all departments of Mathematics, we shall be pleased to publish, in the next issue, brief notes on these solutions from various contributors.

[EDITOR.]

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## PROBLEMS.

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33. Proposed by F. P. MATZ, M. Sc., Ph. D., Professor of Mathematics and Astronomy in Irving College, Mechanicsburg, Pennsylvania.

Find the average area of all regular polygons having a *constant* apothem.

34. Proposed by B. F. FINKEL, A. M., Professor of Mathematics, Drury College, Springfield, Missouri.

Two points are taken at random on the circumference of a semi-circle. Find the chance that their ordinates fall on either side of a point taken at random on the diameter.

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## DIOPHANTINE ANALYSIS.

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Conducted by J. M. COLAW, Monterey, Va. All contributions to this department should be sent to him.

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### DIOPHANTUS' EPITAPH.

Hic Diophantus habet tumulum, qui tempora vitæ  
 Illius mira denotat arte tibi,  
 Egit sextantem juvenis; languine malas  
 Vestire hinc coepit parte duodecima.  
 Septante uxori post hæc sociatur, et anno  
 Formosus quinto nascitur inde puer.  
 Semissem ætatis postquam attigit ille paternæ  
 Infelix subita morte peremptus obit.  
 Quatuor æstates genitor lugere superstes  
 Cogitur: hinc annos illius assequere.